

REMARKS

The application includes claims 1-46 prior to entering this amendment.

The examiner indicated that claim 46 contains allowable subject matter.

The applicants amend claims 1, 10, 21, 30, 42, 44 and 46.

The applicants add new claims 47-56.

The application remains with claims 1-56 after entering this amendment.

The applicants do not add new matter and request reconsideration.

Allowable Subject Matter

The examiner objected to claim 46 as being dependent upon a rejected base claim, but indicated that it would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The applicants thank Examiner Yuen for recognizing the allowability of claim 46, and have rewritten the claim in independent form to overcome the objection. The applicants note that the amendments to claim 46 are being done to further prosecution, and do not imply agreement with the examiner's reasons for allowability.

Claim Rejections - 35 U.S.C. § 103

Claims 1, 3, 10-12, 21, 23, 30, 32, 42, and 43 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Farrell, *et al.* (U.S. Patent Application Publication 2006/0098586) in view of Bennett (U.S. Patent 7,336,620).

Claims 2, 7-9, 13-15, 22, 27-29, 31, and 36-39 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Farrell in view of Bennett as applied to claim 1 above, and further in view of Adhikari, *et al.* (U.S. Patent Application Publication 2004/0252646).

Claims 4, 24, and 33 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Farrell in view of Bennett as applied to claim 3 above, and further in view of Hefel, *et al.* (U.S. Patent 5,563,875).

Claim 5, 6, 25, 26, 34, 35, and 44 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Farrell in view of Bennett as applied to claim 1 above, and further in view of Makowski, *et al.* (U.S. Patent Application Publication 2004/0240431).

Claims 16-18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Farrell in view of Wen, *et al.* (U.S. Patent 6,947,381).

Claims 19 and 40 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Farrell in view of Wen as applied to claim 16 above and further in view of Makowski.

Claim 20 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Farrell in view of Wen as applied to claim 16 above and further in view of Adhikari.

Claim 41 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Farrell in view of Wen and Adhikari as applied to claim 20 above, and further in view of Gentle (U.S. Patent Application Publication 2004/0223458).

Claim 45 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Farrell in view of Bennett and Makowski as applied to claim 44 above and further in view of Adhikari.

With regard to claim 16, the examiner did not find the applicants' arguments filed 12/21/2007 to be persuasive, and indicated:

In reference of Farrell, the source node determined that the response is an ICMP time exceeded message, the node at which packet expired is recorded. The process may also record the hop, or internodal segment time delay between the nodes at which the packet expired. Further detailed of the internodal segment can be found in paragraph 0025 or as cited by applicant in remark page 14, which states "by measuring the time between when an application packet is sent and when the error notification is received, it is also possible to determine a delay for each internodal segment on the route". Thus, time out error message generated by the intermediate node is associated with a time value, wherein the message received by the source node can measure the time delay based on the time value related information. Thus, the references of Farrell in combination of Wen overcome the argument.¹

The rejection of claim 16 in the current Office Action (page 13) is an expansion of the arguments of the previous Office Action dated Aug. 27, 2007 (page 11), with added material similar to the above.

With respect, the examiner is not clearly addressing all of the elements of claim 16, which recites (emphasis added):

a processor configured to receive a trace packet containing an expiration value causing the processor to discard the trace packet and generate an expiration message that

¹ Office Action, page 2.
AMENDMENT

identifies a time value associated with when the trace packet was received by the processor.

Specifically, claim 16 recites generating “an expiration message that identifies a time value associated with when the trace packet was received by the processor,” the processor being the one that “discard[ed] the trace packet.”

The examiner is not clearly showing, nor can the applicant determine, anywhere in Farrell or Wen, either alone or in combination, where a time value associated with when a processor receives a packet that the processor is discarding is identified.

Specifically, Farrell only determines a round-trip delay. The cited portion of the applicants’ remarks (filed 12/21/2007) on page 14 is a quote from Farrell, but the examiner did not include the full context of the applicants’ remarks (emphasis added):

Farrell also teaches that delay is measured in a round-trip fashion, which further supports Farrell’s lack of timestamps at other than the sending endpoint:

By measuring the time between when an application packet is sent and when the error notification is received, it is also possible to determine a delay for each internodal segment on the route. (Farrell, paragraph [025])

The applicant clarifies for the examiner that a node at which a processor configured to receive a trace packet “containing an expiration value causing the processor to discard the trace packet” (emphasis added) is not and cannot be construed to be Farrell’s “source node” that determines “that the response is an ICMP time exceeded message.” Rather, the node at which this happens must be a node that generates “an expiration message,” such as an ICMP time exceeded message, and not a source node that receives the expiration message. The applicant’s claim 16 does not read on Farrell’s measuring delay at the source node (in a round-trip fashion).

The applicant also cannot find in Farrell any teachings outside of known network protocols of operation of nodes other than the source node, whereas claim 16 recites (emphasis added) “a processor configured to receive a trace packet” and “generate an expiration message that identifies a time value associated with when the trace packet was received.” These elements cannot be satisfied by Farrell’s source node, and are not present in Farrell or Wen, either alone or in combination.

Accordingly, the examiner has not clearly identified where in Farrell or in Wen, either alone or in combination, all of the elements of claim 16 are present. For at least this reason, claim 16 is allowable.

With regard to claim 1, the examiner states (emphasis added):

Bennett from the same or similar fields of endeavor teaches the method of receiving an intermediate node time value in the packet expiration notice indicating when the intermediate node received the trace packet (column 16, lines 45-67, column 17, lines 1-35). As shown in column 17, example is taught. Host A sends an Echo request to 0 with a TTL of 255 and both intermediate nodes Band C insert Path Records, wherein the path records are the timestamps. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Bennett in the network of Farrell et al. The motivation for using the method as taught by Bennett in the network of Farrell et al. being that it increase the speed of error detection.²

Respectfully, this is a misinterpretation of Bennett's teachings. Bennett has no teachings regarding a "packet expiration notice." Therefore, Bennett cannot teach "the method of receiving an intermediate node time value in the packet expiration notice indicating when the intermediate node received the trace packet" as the examiner alleges.

Bennett's usage example (referenced by the examiner above) uses a TTL value of 255 specifically so that the packet will not expire and will reach its destination. There are no teachings in Bennett of using any form of packet expiration as part of Bennett's IP Measurement Protocol (IPMP).

The examiner suggests a motivation for combining Farrell and Bennett: "that it increase the speed of error detection." The applicants are unclear as to what the examiner means by "error detection," since that does not seem to be a desired outcome or feature of either Farrell or of Bennett. (For example, Farrell does detect errors when a path is not found from a source to a destination, but error detection is not a goal or desired outcome in Farrell.) The applicant does not believe that increasing "speed of error detection" is a valid motivation for combining Farrell and Bennett, if such a combination were even possible.

Bennett's teachings are incompatible with the teachings of Farrell. Bennett's teachings are for an IP Measurement protocol that requires a specific IP packet type having a specified protocol field. Bennett provides one version of the IP header used with IPMP packets:

IP Protocol Header Values
Version=4
IHL=5
Identification=0
Flags=DF

² Office action, page 4.
AMENDMENT

Fragment offset=0
IP Protocol type=TO BE ASSIGNED.
IP options are forbidden.³

Thus, Bennett's timestamps inserted in path records in Bennett's IPMP packets cannot be combined with Farrell's expiration messages because:

(a) Bennett's timestamps are only returned if and when Bennett's IPMP packets reach the destination node, whereas Farrell's error notifications are only returned when a packet does not reach the destination node.

(b) Farrell's "error notifications" are a different type of packet (such as an ICMP time exceeded packet type) than that causing the "error", whereas in Bennett the measurement packets sent by a source and echoed by a destination are all IPMP packets.

Additionally, the applicant's claim 1 recites that "an intermediate node other than the destination endpoint in the packet switched network" sends "back to the source a packet expiration notice indicating expiration of the TTL value" and that there is "an intermediate node time value determined by the intermediate node in the packet expiration notice indicating when the intermediate node received the trace packet." These elements are not present in the combination of Farrell and Bennett as Bennett's timestamps are only added to Bennett's IPMP packets (which are neither packet expiration notices nor sent back to a source from an intermediate node) and Farrell does not add timestamps to packets.

Accordingly, neither Bennett nor Farrell, either alone or in combination, teach or suggest all of the elements of claim 1. For at least this reason, claim 1 is in condition for the examiner's allowance.

With regard to claims 21 and 30, the examiner indicates:

Claim 21 is rejected similar to claim 1.

Claim 30 is rejected similar to claim 1.⁴

Claims 21 and 30 have elements similar to those of claim 1. Claim 21 recites (emphasis added):

means for varying a Time To Live (TTL) value in a trace packet from a source and addressed to a destination endpoint to intentionally cause an intermediate node other than the destination endpoint in the packet switched network to send back to the source a packet expiration notice indicating expiration of the TTL value; and

³ Bennett, col. 23, lines 34-41.
AMENDMENT

means for receiving an intermediate node time value determined by the intermediate node in the packet expiration notice indicating when the intermediate node received the trace packet.

Claim 30 recites (emphasis added):

varying a Time To Live (TTL) value in a trace packet from a source and addressed to a destination endpoint to intentionally cause an intermediate node other than the destination endpoint in the packet switched network to send back to the source a packet expiration notice indicating expiration of the TTL value; and

receiving an intermediate node time value determined by the intermediate node in the packet expiration notice indicating when the intermediate node received the trace packet.

Accordingly, the remarks above with respect to claim 1 apply similarly to claims 21 and 30, and claims 21 and 30 are in condition for the examiner's allowance for at least this reason.

With regard to claim 10, the examiner indicates:

However, Farrell et al. did not disclose the method of the message containing an intermediate node timestamp value identifying when the packet reached the intermediate node.

Bennett from the same or similar fields of endeavor teaches the method of the message containing an intermediate node timestamp value identifying when the packet reached the intermediate node (column 16, lines 45-67, column 17, lines 1-35). As shown in column 17, example is taught. Host A sends an Echo request to D with a TTL of 255 and both intermediate nodes Band C insert Path Records, wherein the path records are the timestamps. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Bennett in the network of Farrell et al. The motivation for using the method as taught by Bennett in the network of Farrell et al. being that it increase the speed of error detection.⁵

Respectfully, this is a misinterpretation of Bennett's teachings. Bennett has no teachings regarding an "error notification" as in Farrell. Therefore, Bennett cannot teach "the method of the message" (Farrell's error notification from the "node at which an application packet expires"⁶) "containing an intermediate node timestamp value identifying when the packet reached the intermediate node" as the examiner alleges.

⁴ Office Action, page 6.

⁵ Office Action, page 5.

⁶ Farrell, paragraph [012].

Claim 10 has elements similar to those of claim 1. Claim 10 recites (emphasis added):

a processor at a source endpoint sending a packet addressed to a destination endpoint that intentionally causes an intermediary node other than the destination endpoint to send back to the source endpoint a message containing an intermediate node timestamp value identifying when the packet reached the intermediate node.

Accordingly, the remarks above with respect to claim 1 apply similarly to claim 10, and claim 10 is in condition for the examiner's allowance for at least this reason.

With regard to claim 42, the examiner indicates:

However, Farrell et al. did not explicitly disclose the method of extracting an intermediate node time value from the packet expiration notice, the packet expiration notice inserted by the intermediate node and indicating when the intermediate node, not the destination node, received the trace packet said formatting including addressing the trace packet with a destination address that corresponds to the destination endpoint. Bennett from the same or similar fields of endeavor teaches the method of extracting an intermediate node time value from the packet expiration notice, the packet expiration notice inserted by the intermediate node and indicating when the intermediate node, not the destination node, received the trace packet (column 16, lines 45-67, column 17, lines 1-35). As shown in column 17, example is taught. Host A sends an Echo request to 0 with a TTL of 255 and both intermediate nodes B and C insert Path Records, wherein the path records are the timestamps. The hosts uses or extracting the information in the path records to determine the measurements between node B and node C; said formatting including addressing the trace packet with a destination address that corresponds to the destination endpoint (column 17, lines 35- 42). The echo reply message has the address to which the information should be sent to. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Bennett in the network of Farrell et al. The motivation for using the method as taught by Bennett in the network of Farrell et al. being that it increase the speed of error detection.⁷

Respectfully, this is a misinterpretation of Bennett's teachings. Bennett has no teachings regarding a "packet expiration notice." Therefore, Bennett cannot teach "the method of extracting an intermediate node time value from the packet expiration notice" as the examiner alleges.

The examiner also appears to be alleging that Bennett's destination endpoint sending an "echo reply message" back to a source endpoint is the same as an intermediary node other than the destination endpoint sending "back to the origination endpoint a packet expiration notice." Clearly the intermediate node is different than the destination endpoint, as the applicants' claim

⁷ Office Action, page 7.
AMENDMENT

42 recites “a destination endpoint that is different than the intermediary node.” Clearly, Bennett’s echo reply message (part of Bennett’s IP Measurement Protocol) is not a same type of packet as “a packet expiration notice” which is caused to be sent by a “selected TTL value.”

It is not reasonable to construe Bennett teaching or suggesting the applicants’ claim 42 when Bennett, either alone or in combination with Farrell, provides no teaching or suggestion that an intermediary node different than the destination endpoint” sends “back to the origination endpoint a packet expiration notice” with “the intermediate node time value inserted by the intermediate node in the packet expiration notice.” As explained above with regard to claim 1, Bennett’s timestamps are only added to Bennett’s IPMP packets, and Farrell does not add timestamps to packets.

Accordingly, neither Bennett nor Farrell, either alone or in combination, teach or suggest all of the elements of claim 42. For at least this reason, claim 42 is in condition for the examiner’s allowance.

As dependent claims 2-9, 11-15, 17-20, 22-29, 31-41, and 43-45 incorporate all of the elements of a respective one of independent claims 1, 10, 16, 21, 30, and 42, and as independent claims 1, 10, 16, 21, 30, and 42 are in condition for the examiner’s allowance per the remarks above, dependent claims 2-9, 11-15, 17-20, 22-29, 31-41, and 43-45 are also in condition for the examiner’s allowance for at least this reason.

Additionally, with regard to claim 7, claim 7 recites:

formatting the trace packet as a Real Time Protocol (RTP) payload packet that travels along a same media path as corresponding RTP payload packets containing media content.

The examiner alleges that Adhikari:

disclosed the method of including formatting the trace packet as a Real Time Protocol (RTP) payload packet that travels along a same media path as corresponding RTP payload packets containing media content (see paragraph 0056, lines 1-16).⁸

Respectfully, this is a misinterpretation of Adhikari. Adhikari techniques are for an end-to-end protocol:

⁸ Office Action, page 9.
AMENDMENT

When attempting to generate a synthetic call, the originating endpoint device typically performs a call setup process to set up the call with a specified destination endpoint device, and then begins to send RTP packets with a predetermined payload.⁹

Thus, Adhikari's techniques are similar to Bennett's, in that both are techniques used between endpoints. While Adhikari does teach a use of RTP, Adhikari, either alone or in combination with Farrell or Bennett, does not teach or suggest the applicant's claim 7 which recites "formatting the trace packet as a Real Time Protocol (RTP) payload packet that travels along a same media path as corresponding RTP payload packets" and "receiving an intermediate node time value determined by the intermediate node in the packet expiration notice indicating when the intermediate node received the trace packet." For at least this reason, claim 7 is in condition for the examiner's allowance. Claims 27 and 36 have elements similar to those of claim 7, and were rejected for the same reason as claim 7. Accordingly, claims 27 and 36 are also in condition for the examiner's allowance for at least this reason.

New Claims

New claims 47-49 are dependent on independent claim 42. As independent claim 42 is allowable per the remarks above, dependent claims 47-49 are also in condition for the examiner's allowance for at least this reason.

Additionally, with regard to claim 47, claim 47 recites:

formatting the trace packet as a media trace packet that travels along a same media path as corresponding media payload packets containing media content.

Similar remarks as above with regard to claim 7 apply to claim 47, and claim 47 is also in condition for the examiner's allowance for at least this reason.

Additionally, with regard to claim 48, claim 48 recites:

wherein the media trace packets are sent over the media path after the media path is reserved.

Claim 48 recites "media trace packets" that "are sent over" a reserved media path that is also used for "corresponding media payload packets containing media content." As far as the applicants can discern, this element is not present in any of the cited references, and claim 48 is also in condition for the examiner's allowance for at least this reason.

⁹ Adhikari, paragraph [056].
AMENDMENT

New dependent claims 50-53 incorporate all of the elements of a respective one of independent claims 1, 10, 21, and 30, and as independent claims 1, 10, 21, and 30 are in condition for the examiner's allowance per the remarks above, dependent claims 50-53 are also in condition for the examiner's allowance for at least this reason.

Additionally, new dependent claims 50-53 include an element similar to that of allowable claim 46. As the examiner indicated with regard to claim 46:

The prior art failed to teach the method of at a time the trace packet is sent, the existence of the destination node on the path is known by the originating endpoint while the existence of the intermediary node on the path is not known, such that the originating node receives back a communication indicating the time that a previously unknown node received the trace packet.¹⁰

Without implying agreement with the examiner's reasons for the allowability of claim 46, dependent claims 50-53 containing a similar element are in condition for the examiner's allowance for at least this reason.

New independent claim 54 recites (emphasis added):

determining, according to a Time-To-Live (TTL) value of a trace packet sent from a source node to a destination node, the intermediary node different from the destination node, to discard the trace packet;

generating, in response to the determining, an expiration message containing a time value according to when the intermediary node received the trace packet;

None of the references teach or suggest "an expiration message containing a time value according to when the intermediary node received the trace packet." For at least this reason, claim 54 is in condition for the examiner's allowance.

New claims 55-56 are dependent on independent claim 54. As independent claim 54 is allowable per the remarks above, dependent claims 55-56 are also in condition for the examiner's allowance for at least this reason.

¹⁰ Office Action, page 18.
AMENDMENT

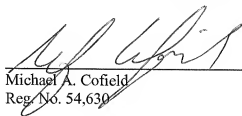
Conclusion

For the foregoing reasons, the applicants request reconsideration and allowance of claims 1-56. The applicants encourage the examiner to telephone the undersigned if it appears that an interview would be helpful in advancing the case.

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Respectfully submitted,

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